

## **Production Value and Location**

Gregory Theyel, Ph.D. grt27@cam.ac.uk

No part of this presentation may be circulated, quoted, or reproduced for distribution without prior written approval from the Institute for Manufacturing, University of Cambridge. This material was used by the University of Cambridge during an oral presentation; it is not a complete record of the discussion.





## **Production Value and Location**

**Agenda** 

Study Methods

Reshoring Production

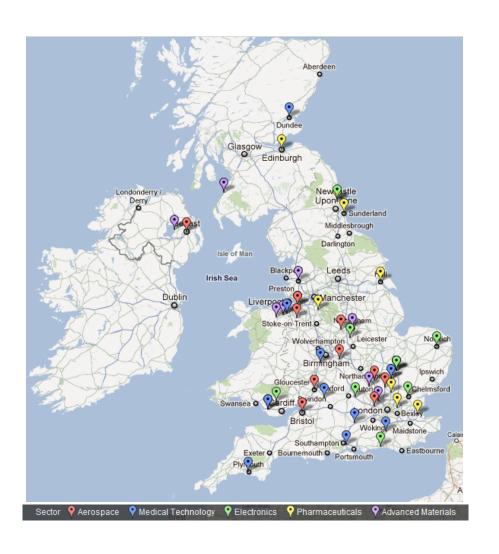
Assessing the Value of Production

**Bay Area Production** 





## Study Methods



Research Questions:
What is the value of production and how does it affect the location of production?

Five leading industrial sectors

>100 companies studied randomly sampled; multiple informants





# United Kingdom and California



Population: 63M Area: 94,060 mi.<sup>2</sup> GDP: \$2.433 trillion

3.1M manufacturing jobs

Biomed, Aerospace. Adv. Materials, Food



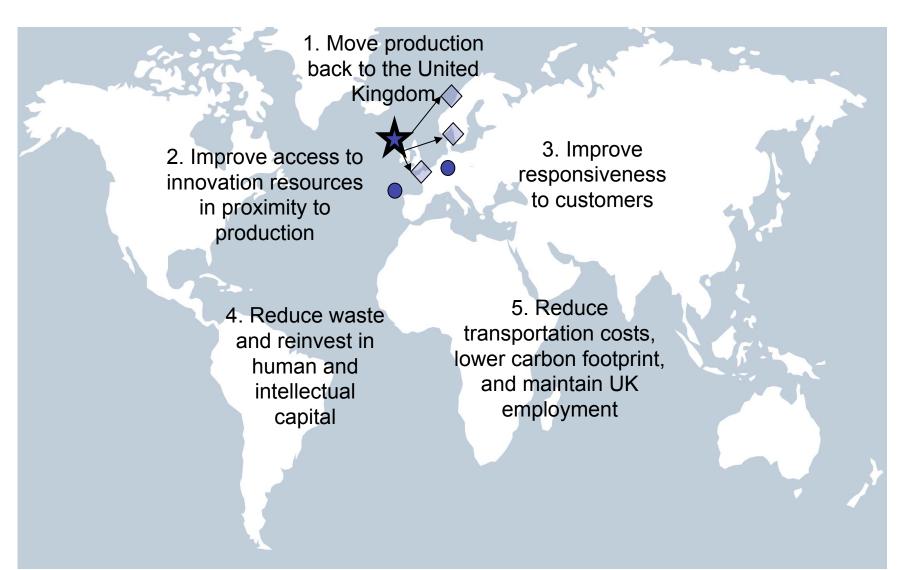
Population: 38M Area: 163,696 mi.<sup>2</sup> GDP: \$1.96 trillion 2.5M manufacturing jobs

Computers, Biomed, Aerospace, Food





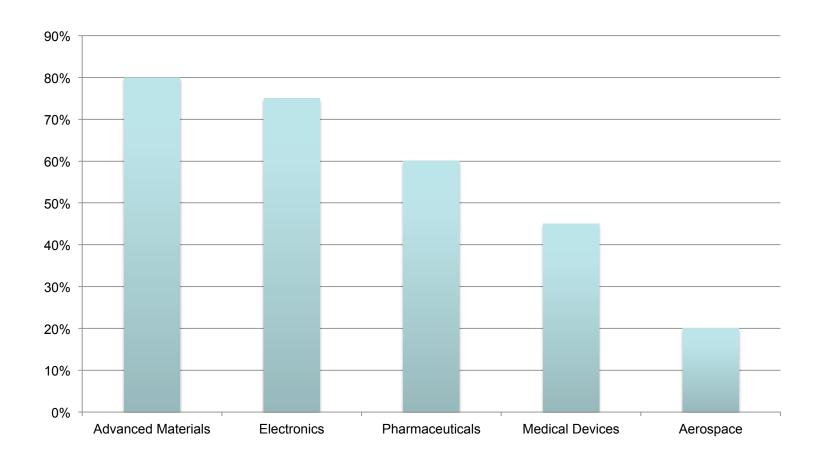
# Reshoring Production







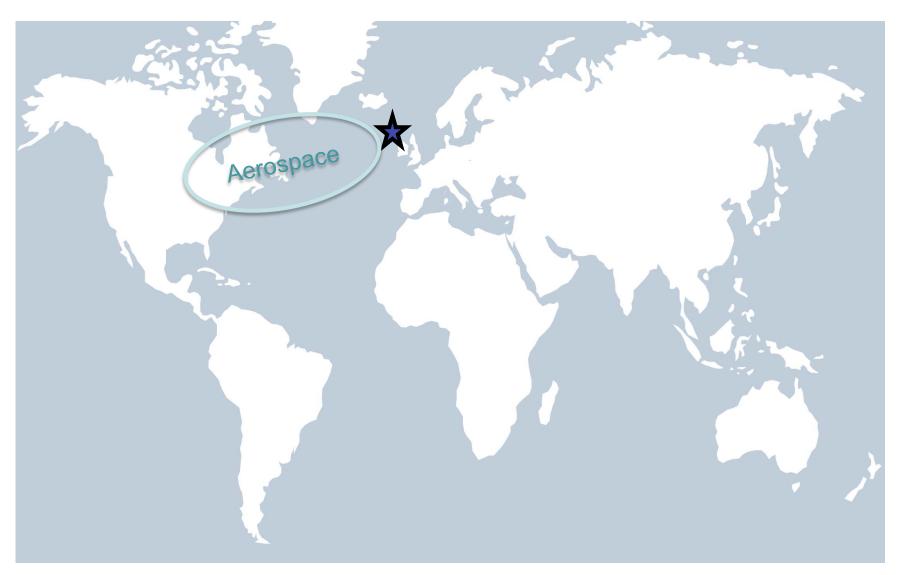
## Offshored Production by Sector







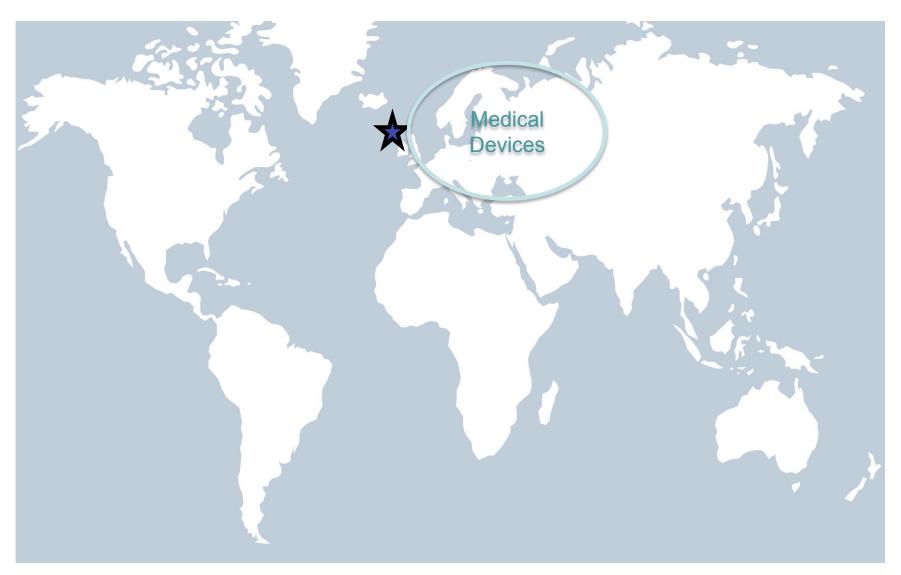
# Global Production Footprint - Aerospace







## Global Production Footprint – Medical Devices







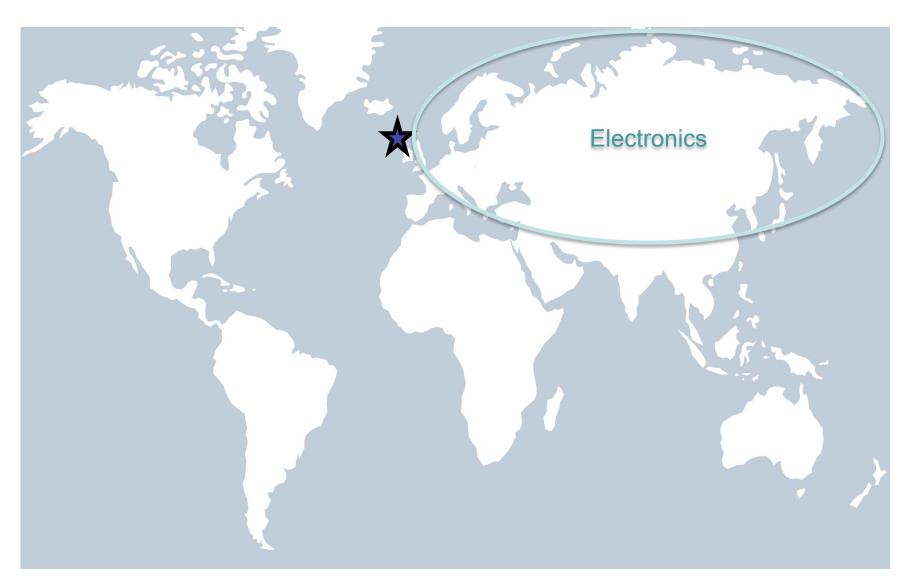
# Global Production Footprint - Pharmaceuticals







# Global Production Footprint - Electronics







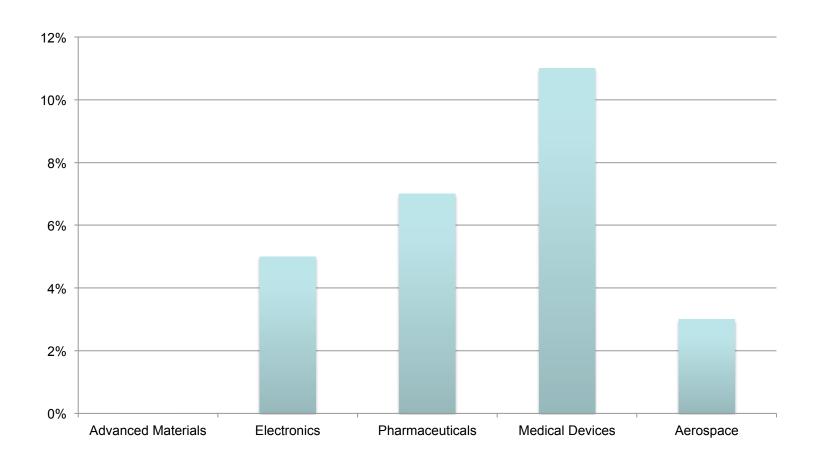
## Global Production Footprint – Advanced Materials







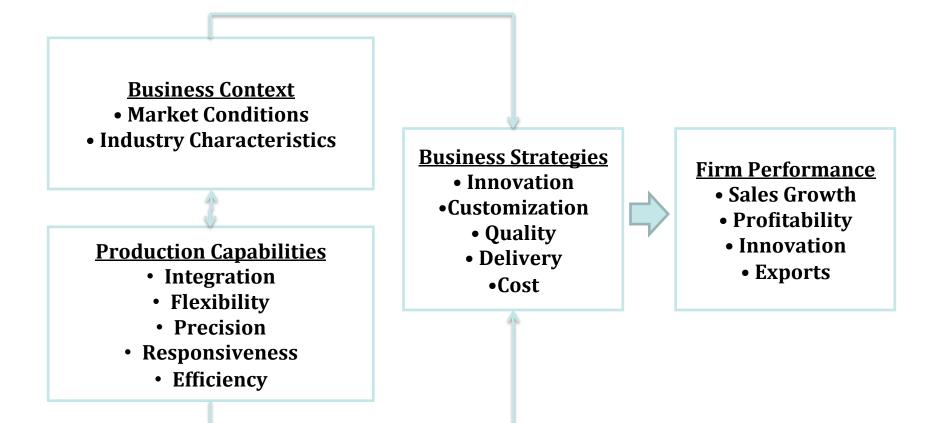
## Reshored Production by Sector 2009-2012







# Strategic Framework for Assessing the Value of Production







### Production for Innovation

<u>Context</u>: Production can drive innovation when differentiation matters, customers are not price sensitive and have specific needs enabling experimentation with equipment, processes, materials while making products.

<u>Capabilities</u>: Value chain integration enables better sharing of expertise, experience, insight, and co-development of products with customers and suppliers.

<u>Performance</u>: Leaders in innovation; profitability; exports

Monitoring: Competition; conditions of demand









## **Production for Customisation**

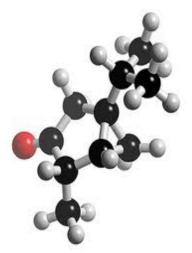
<u>Context</u>: Favorable when businesses have customers willing to pay for adaptations to standard products to meet specialized needs.

<u>Capabilities</u>: A production system that can accept variations in product specifications and ability to communicate with customers to make product changes

<u>Performance</u>: Leaders in profitability; exports

Monitoring: Willingness to pay for speciality products and innovations in production technology and processes to enhance ability to customize more easily.









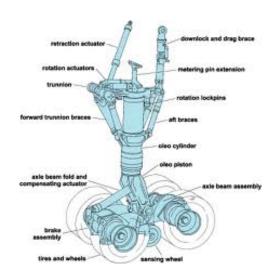
## **Production for Quality**

<u>Context</u>: Production for quality may be essential when a company's reputation and future rests on either differentiating quality or a no-failure guarantee.

<u>Capabilities</u>: Ability to minimize defects in production; ability to employ statistical process control; the extent of quality assurance system extends into supply network

<u>Performance</u>: Leaders in profitability; innovation

Monitoring: Conditions of demand; and innovations in production technology and processes to enhance quality









## Production for Delivery

<u>Context</u>: Engaging in production can ensure delivery because a company can retain greater control over the possible variations that can reduce delivery performance.

<u>Capabilities</u>: Effectiveness at production scheduling and controlling influence ability to deliver products as a competitive advantage.

Performance: Leaders in sales growth

Monitoring: Anticipate and eliminate holdups in production; design of production processes and operations

Case Examples









## **Production for Cost Control**

<u>Context</u>: Engaging in production for cost leadership may be essential with pricesensitive customers and the business has capabilities that enable industry-leading efficiency.

<u>Capabilities</u>: Effectiveness at gaining economies of scale, strategic sourcing; just-in-time production

Performance: Leaders in sales growth

Monitoring: Demand including price sensitivity; innovations in production technology

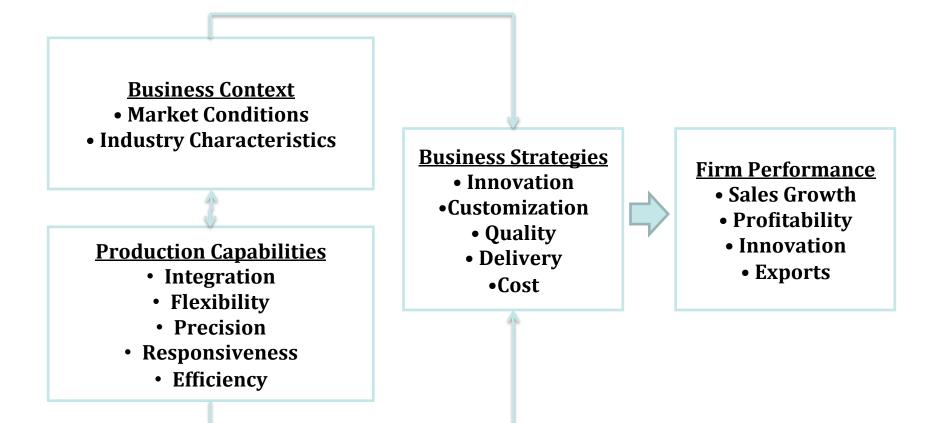








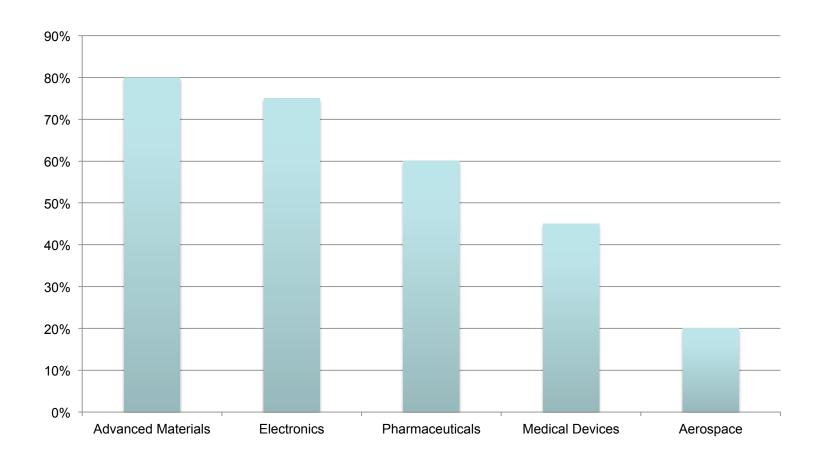
# Strategic Framework for Assessing the Value of Production







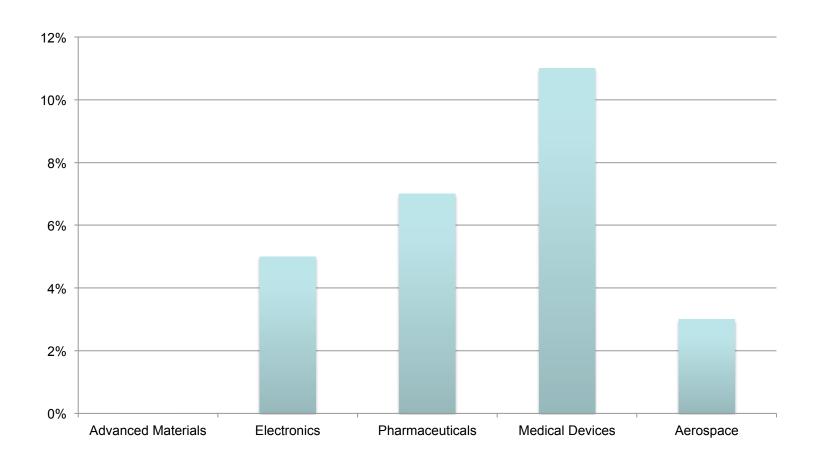
## Offshored Production by Sector







## Reshored Production by Sector 2009-2012

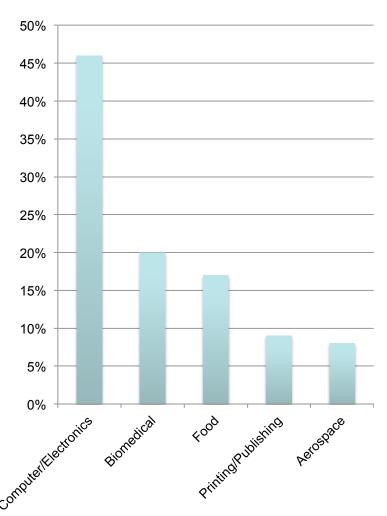






# Bay Area Production - % by Sector











## **Production Value and Location**

Gregory Theyel, Ph.D. grt27@cam.ac.uk

No part of this presentation may be circulated, quoted, or reproduced for distribution without prior written approval from the Institute for Manufacturing, University of Cambridge. This material was used by the University of Cambridge during an oral presentation; it is not a complete record of the discussion.



